

MCS System

Electrifying Logistics with Megawatt Power



The MCS E-Truck Revolution

The global market for electric trucks is rapidly growing, driven by stricter environmental regulations and advancements in battery technology. As e-truck adoption increases, so does the demand for dedicated charging infrastructure to support these high-power vehicles.

With public fast charging for e-trucks projected to become one of the most profitable types of EV charging, this presents a significant opportunity for CPOs. To succeed, they need reliable, easy-to-use systems that integrate seamlessly, and energy delivery that complements the mandatory breaks required for freight-truck drivers.

The MCS system offers the power and performance necessary to support the growing e-truck market and help CPOs thrive in this fast-evolving sector.

Unmatched Energy Delivery A New Standard

Deliver superior customer economics aligned with a truck driver's mandatory rest break.

Deploy accurate and efficient MCS systems that align with the new high-power standard.

Safety-first Design Configurable to Your Site

Improve user safety on-site with technology and features optimized for heavy-duty use.

Adapt physical and digital touchpoints without compromising on fail-safe UX.

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Superior Performance

- 1.2 MW of continuous power at 1500 A aligned with mandatory break dwell times
- 3x 400 kW power cabinets
- 10-year expected lifespan

Purposeful Design

- Filed patents for charge post, connector holder, and double-wall cabinet
- Dedicated MCS charge post with an optional CCS connector
- Configurable touchpoints

Reliable Energy Delivery

- Defines MCS protocols for reliable and scalable charging
- Interoperability tested with leading e-truck OEMs
- Power path from cabinet size to cable length is streamlined for MCS



A 5-Year Journey to Leveraging MCS Charging Capability

 Understanding truck use cases	 2021 ... 2025 ABB experts leading IEC, ISO, and CharIN standardization	 2023-06 First 1000 A sessions in ABB RnD lab using CCS communication stack	 2024 World's first live Megawatt Charger	 2025-02 Interoperability tests with truck OEMs and semi-public plots	 1H 2025 Publication of: ISO 15118-10 MCS communication via Ethernet	 2H 2025 Publication of UL/SEA MCS standard
20 20	20 21	20 23	20 24	20 25		
	 Start development of MCS test chargers for truck OEMs	 Collaboration agreements with truck OEMs	 World's first live MCS charger at truck RnD lab	 2025-03 Implemented and tested MCS communication based on 10Base-T1S Ethernet and ISO 15118-20, in contrast to preliminary MCS systems based on CCS communication.	 1H 2025 Launching MCS	 1H 2025 Early Adopter Program
		2H 2023 Installations at truck OEM RnD labs				



Robust and Purposeful Design

Rotated Connector Holder

The connector holder is rotated at an angle to align the connector correctly with the truck inlet, eliminating torque from the cable.

Double-wall Cabinet

The double-wall cabinet with dual-compartment cooling ensures power electronics are sealed from the elements.

Configurable Charge Post

The charge post is purpose-built for MCS charging sessions while providing flexibility with an optional CCS connector.

Intuitive Interface

360° LED lighting and a central 21.5-inch HD touchscreen is configured for a single outlet and visible from the truck cab.



Our Core Technology

Next-generation power modules are developed entirely in-house for improved efficiency and long-term durability.

97%

Peak Conversion Efficiency

Engineered with SiC technology

SiC semiconductors deliver up to 97% conversion efficiency and reduce energy costs by 20-40% compared to traditional silicon-based systems.

Reactive Power Support

Resilience against grid disturbances

Reactive Power Support with ride-through capability actively balances the grid against 90% of known disturbances, maximizing charger uptime.

Advanced Remote Diagnostics

Setting new standards in remote monitoring

Critical grid and charger data is monitored at 10,000 times per second with Advanced Remote Diagnostics, improving serviceability.

500,000 hrs

Accumulated Testing Efforts

Over 50 years of accelerated life testing

ABB E-mobility chargers and power modules are designed with modular sub-assemblies, enabling rigorous testing of individual components and subsystems.

The 1.2 Megawatt Advantage



Delivering the right amount of energy in the right amount of time.

A 1.2 MW system has the power to deliver the full 1500 A to 800 VDC e-trucks, while a 1 MW system will reduce output current above 700 VDC.

A 1.2 MW system reduces charging time by 8% compared to a 1 MW system when charging an e-truck with a 800 kWh battery.

A 1.2 MW system delivers 20% more energy than a 1 MW system in the same timeframe, fully utilizing a commonly available 1.2 MVA grid connection.

With 1.2 MW and 1500 A of continuous output, our MCS system fully charges e-trucks during the mandatory rest break to ensure drivers get back on the road without delays.

A Fully Managed Charging Solution

We provide tools and services needed to monitor, control, and maintain your EV charging network—remotely and on-site.



Network
Operation



Service &
Maintenance



Site
Configuration



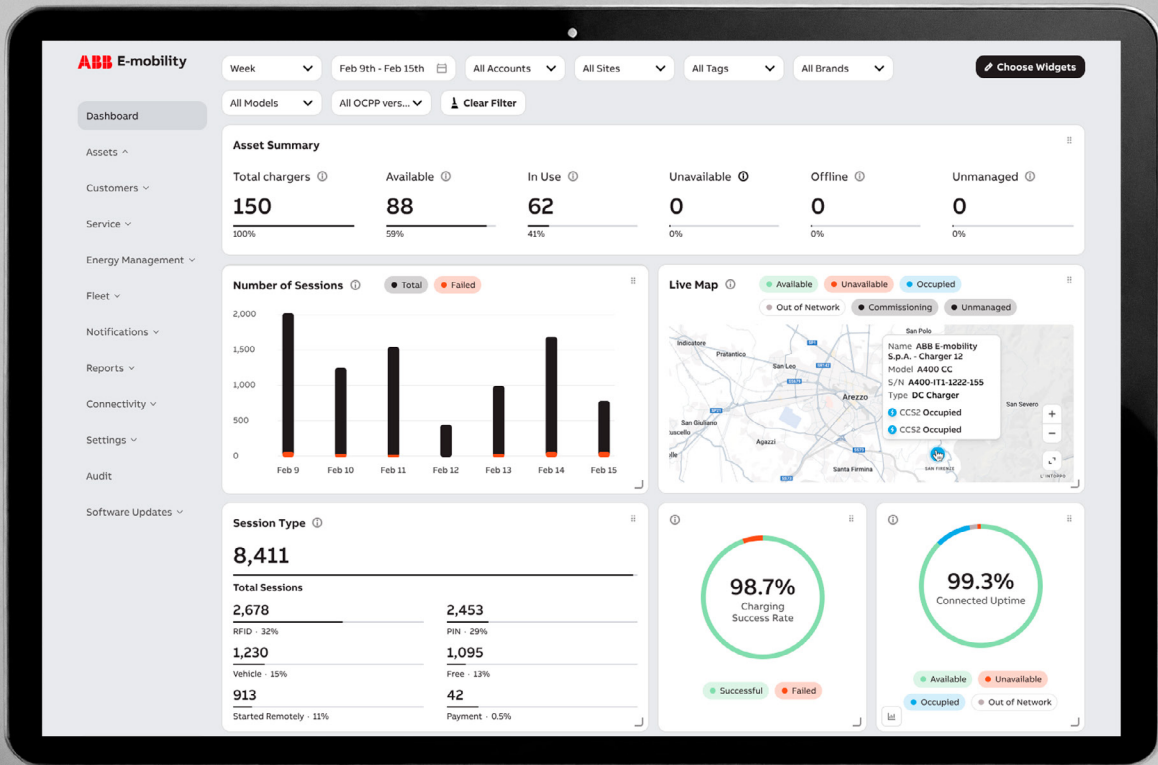
Business
Case



Megawatt
E-Truck
Charging



Software
Integration



Key Features

Configurable Connectors

Choose a **single MCS connector** or an optional dual configuration with CCS.

Cooled Cable & Connector

The **liquid-cooled cable** and connector is optimized for high continuous output.

Real-time Remote Monitoring

A unified toolchain with integrated connected services **maximizes charging success rates**.



In-house Power Electronics

1.2 MW power output is delivered through **SiC power modules** engineered in-house.

Durable Double-wall

Thermal circulation inside the charge post protects and prolongs the life of electronics.

Configurable UI

The **21.5" touch-screen** with a single-outlet display adapts to operational needs.

1500 A

Continuous

OCPP 2.0.1

Ready

ISO 15118-20

Ready

2.4 m
1.5 m

Cable Length
and Reach

MCS
CCS

Connector
Types

We Electrify Mobility



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